REMARKS

The Office Action rejects claims 1-14 under 35 U.S.C. 103(a) as unpatentable over Nakamura in view of Tischler. As the Office Action points out, Nakamura does not teach a multilayer buffer as recited in independent claims 1 and 12 of the present application. The Office Action refers to Tischler, pointing out Tischler's multi-layered buffer. However, the Tischler buffer is not the same as the buffer of claims 1 and 12 for the reasons discussed below.

Tischler (US 5,679,152) teaches the use of a strained layer superlattice having alternating layers for the growth of a GaN substrate material. The Tischler buffer is a strained layer superlattice. The buffer of claims 1 and 12 is very different, specifying that the buffer is an amorphous or polycrystalline structure, which is different from a superlattice which is a single crystal formation. In the specification of the present application and in claims 1 and 12 as amended, the amorphous or polycrystalline buffer layers given as examples are nitride compound layers and are formed at a temperature within the range of 500-550°C.

A strained layer superlattice such as that described by Tischler is a different structure from the amorphous/polycrystalline structure of claims 1 and 12, and is formed at substantially higher temperatures. For example, a nitride compound superlattice layer would require a forming temperature around 1000°C. Although an "As" compound superlattice layer formed at a temperature of 630°C is indicated by Tischler in the 1 February 1985 Applied Physics Letter, the formation of an amorphous layer of such material must be done at a lower temperature than formation of a superlattice (single crystal) layer of the same material. Also, a superlattice buffer layer is thicker than the layers specified in claims 1 and 12. As reported by Tischler, the minimum superlattice thickness is 100 angstroms or 10 nm, which is nearly twice that of the maximum specified by claims 1 and 12 for an amorphous or polycrystalline structure. In addition to the very different structure and conditions of formation which distinguish the amorphous buffer layer of amended claims 1 and 12 of the present application from Nakamura and Tischler, the buffer layer of the present invention is different in requiring a critical range of parameters. This is indicated in amended claims 1 and 12 by the layer thickness range of 2 nm - 6 nm.

The Office Action argues that Nakamura and Tischler teach a polycrystalline buffer formed at 200°C-900°C. However, the buffer of Nakamura is only a single layer, and the claims

of the present application relate to a multi-layered buffer. Nakamura combined with Tischler does not teach or suggest the invention of amended independent claims 1 or 12, because Tischler does not describe an amorphous or polycrystalline buffer, but instead describes a superlattice, which is a different structure and formed at higher temperatures for a given material. Moreover, the combination of Nakamura and Tischler does not make sense because they relate to different structures. Therefore, these references cannot be combined to suggest the present invention as now claimed.

The Office Action rejects claims 1-14 under 35 U.S.C. 103(a) as unpatentable over Koide et al. The Koide layers are formed at temperatures outside the ranges of independent claims 1 and 12. See Koide at col. 6, line 27 to col. 7, line 3. Moreover, Koide teaches a light-emitting layer, while the present application and the claims as amended relate to a non-lighting emitting buffer layer. Therefore, Koide does not teach or suggest the present invention as now claimed, nor can it be combined with Nakamura to teach or suggest the present invention.

CONCLUSION

Applicants have explained the differences between the claims and the cited references, and believe they are now allowable.

If any further questions should arise prior to a Notice of Allowance, the Examiner is respectfully invited to contact the attorney at the number set forth below.

Date: March 25, 2005

Respectfully submitted,

David H. Jaffer
Reg. No. 32,243
Customer No. 27498

PILLSBURY WINTHROP LLP
2475 Hanover Street
Palo Alto, CA 94304-1114
Tel: (650) 233-4510
Fax: (650) 233-4545

CERTIFICATE OF FACSIMILE TRANSMISSION

I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being transmitted via facsimile to (703) 872-9306, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on March 25, 2005

By: Bobbie Jutras
Bobbie Jutras